

INTRODUCTION

The Environmental Assessment (EA) is a site specific analysis of potential environmental impacts that could result with the implementation of a proposed action. The EA assists the Agency in project planning and insuring compliance with the National Environmental Protection Act (NEPA) and making a determination as to whether any "significant" impacts could result from proposed actions. This EA has been prepared for the Swiftwater Field Office's proposed **BELL MOUNTAIN REGENERATION and COMMERCIAL THINNING HARVEST**. This proposal is in conformance with the *Final - Roseburg District Proposed Resources Management Plan / Environmental Impact Statement (PRMP/EIS)* dated October 1994 and its associated *Record of Decision and Resources Management Plan (RMP)* dated June 2, 1995. The RMP is supported by and consistent with the *Final Supplemental Environmental Impact Statement on Management of Habitat for Late-Successional and Old Growth Forest Related Species Within the Range of the Northern Spotted Owl (FSEIS)*; dated Feb. 1994 and its associated *Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents Within the Range of the Northern Spotted Owl (ROD)* and *Standards and Guidelines for Management of Habitat for Late-Successional and Old Growth Related Species Within the Range of the Northern Spotted Owl (S&G)* dated April 13, 1994 otherwise known as the "Northwest Forest Plan" (NFP). The ROD establishes management direction consisting of "... extensive standards and guidelines including land allocations, that comprise a comprehensive ecosystem management strategy" (ROD pg. 1).

The project described in this EA will undergo formal public review. After the completion of public review a "Finding of No Significant Impact" (FONSI) would be signed as appropriate. A signed FONSI would find that no "significant" environmental impact (effect) would occur with the implementation of the proposed actions beyond those already addressed in the FSEIS when the project design features specified in this EA are followed. "Significance" has a strict NEPA definition and is found in regulation 40 CFR 1508.27. The FONSI documents the application of this definition of significance to the proposed action.

A Decision Rationale would be completed after public review to document the decision and reflect any changes as the result of public review, however, Forest Management Regulation 43 CFR 5003.2 states that "[w]hen a decision is made to conduct an advertised timber sale, the notice of such sale shall constitute the decision document." This notice would be placed in *The News Review* and constitute a decision document with authority to proceed with the proposed action.

I. PURPOSE OF AND NEED FOR ACTION

This section provides a general overview of the proposed action. Included are: the need for the action, a general description and background of the proposal, the issues to be analyzed, and issues eliminated from detailed analysis in this EA.

A. Need for Action

The RMP and the ROD respond to dual needs: "... the need for a healthy forest ecosystem with habitat that will support populations of native species and includes protection for riparian areas and waters. ... and the need for a sustainable supply of timber and other forest products that will help maintain the stability of local and regional economies ..." (RMP pg. 15, ROD, pg. 26). The Swiftwater Field Office proposes to offer the **BELL MOUNTAIN REGENERATION HARVEST and COMMERCIAL THINNING** for auction in fiscal year 1998 or later. This proposal would help meet the Swiftwater Field Office's annual harvest commitment or allowable sale quantity (ASQ).

The RMP also states that "Commercial thinnings are scheduled after developing stands reach a combination of stem diameter and surplus volume to permit an entry that is economical" (RMP, pg. 149). Silvicultural stand exams indicate that the stand identified in this project would benefit from a thinning at this time.

B. Description of the Proposal

The proposal is to harvest timber in the Elkton Watershed located in Sections 14, 23, 27 and 28; T22S, R7W; W.M. (see maps, Appendix A through C). The proposed project area is approximately five road miles east of Elkton and 30 air miles north northwest of Roseburg, Oregon. Approximately 280 acres were analyzed for potential harvest activities. This project is within the Matrix and Riparian Reserve Land Use Allocations (LUA). New temporary road construction and renovation or improvement of existing roads would also occur. Section II (pg. 5) of this EA provides a more detailed description of the Proposed Action Alternative.

The Matrix LUA is one of the seven allocations specified in the ROD. "Stands in the matrix can be managed for timber and other commodity production, and to perform an important role in maintaining biodiversity" (S&G, pg. B-6) by providing for biological legacies (snags, large woody debris and retention trees) that bridge past and future forests. The RMP further classifies the Matrix into two categories: the "General Forest Management Area" (GFMA); i.e. lands available for timber harvest and "Connectivity" i.e lands that are available for timber harvest and provide connectivity between Late-Successional Reserves and Riparian Reserve.

C. Background (Watershed Analysis)

The Bell Mountain Regeneration and Commercial Thinning Harvest project would occur within two drainages: Hancock Creek (2,544 acres) and Lower Elk Creek. (1,585 acres). These drainages are within the Elkton Subwatershed which covers approximately 12,595 acres (20 square miles). Watershed analysis (WSA) for the Elkton-Umpqua Watershed was used in this analysis and is available for public review at the Roseburg District office. Current landscape patterns include natural stands that are the result of fire, managed stands established following timber harvest, and non-forested agricultural and pasture lands.

The RMP (pg. 34) requires that late-successional forests be retained in watersheds that comprise 15% or less late-successional forests on Federal lands in fifth field watersheds, i.e., watersheds between 20 and 200 square miles. Any timber stands greater than approximately 80 years of age are considered late-successional habitat (S&G, pg. B-2). For the Elkton-Umpqua Watershed, analysis of current forest inventories shows that of the 29,761 acres of Federal ownership (33% of the watershed) [WSA, Table 1-1], approximately 15,075 acres (51%) are late-successional forests (80 years or older) and 8,338 acres (28%) are greater than 200 years (Old Growth). It was estimated that approximately 1409 acres of these late-successional stands are outside any type of reserve or withdrawn area and thus available for regeneration harvests [WSA, Table 1-3, 1-4 and 1-5 by computation]. The project as proposed would remove approximately 54 acres of these stands from this watershed. Approximately 13,666 acres of late-successional forest are included within various reserves and are unavailable for harvest. This is 15% of the total watershed.

Six of the units are within a connectivity / diversity block (Sections 27 and 28). The RMP (pg. 34) requires that 25 - 30% of each connectivity block be maintained in late-successional forest. This block contains 627 acres. This project would remove 35 acres of late-successional forest from this block leaving 306 acres of late-successional forest (49% of the block) post harvest.

D. Objectives

1. For the **Matrix** portion:

- a. "Produce a sustainable supply of timber and other forest commodities " (RMP pg. 33) and meet District ASQ goals (GFMA) and "Provide connectivity ... between late-successional reserves" (RMP, pg. 33) (Connectivity).
- b. Improve stand health by reducing the excess stocking in the forest stand to increase the growth and vigor of the remaining individual trees.

2. For the **Riparian Reserve** portion:

Accelerate the development of large conifers of various form and structure for large trees and future recruitment of coarse woody debris (CWD) within the Riparian Reserve and meet the Aquatic Conservation Strategy (ACS) objective of 'restoring structural diversity of plant communities in riparian areas'.

3. Implement ecosystem management as outlined in the ROD and RMP

- avoid damage to riparian ecosystems and meet the objectives of the "Aquatic Conservation Strategy" (S&G, pg. B-11; RMP pg. 19)
- "Provide habitat for a variety of organisms associated with both late successional and younger forests." (RMP pg. 33)
- maintain "ecologically valuable structural components such as down logs, snags and large trees". (RMP pg. 33)

- improve and/or maintain soil productivity (RMP pg. 35)
- "Maintain or enhance the fisheries potential of the streams . . ." (RMP pg. 40)
- protect, manage and conserve all special status and Supplemental Environmental Impact Statement special attention species habitat. (RMP pg. 41)

E. Decisions to be Made to Meet Proposal Objectives

1. The Decision Maker (the Swiftwater Area Manager) will need to decide:
 - if this analysis supports the signing of a FONSI.
 - whether to select the Proposed Action Alternative, modify the Proposed Action Alternative, choose another alternative, or accept the No Action Alternative.

2. Consultation with the National Marine Fisheries Service (NMFS) will need to be completed for the Cutthroat trout. This project may have to be altered as the result of consultation (See section V, para. A).

F. Issues Considered but Eliminated from Detailed Analysis

The Interdisciplinary (ID) Team identified the following concerns during project design. They were eliminated from further analysis because: (1) project design features (PDF's) were included in the Proposed Action Alternative to lessen the anticipated environmental impacts of specific activities, or (2) the concern was not considered as a key issue warranting detailed analysis, or (3) the impacts are within the limits addressed in the ROD/RMP. Section II, paragraph C (pg. 6) provides a list of specific PDF's incorporated into the preferred alternative to deal with these issues. These issues are summarized in Appendix D ("Issue Identification Summary") and addressed the Specialist's Reports in Appendix F.

1. Botany
 - a. SEIS Special Status Plants (SSP) sites in Units 14A, 23A and 27A
 - b. Noxious weeds

2. Hydrology

Potential effects to water quality from sedimentation

3. Soils
 - a. Isolated areas of slope stability concerns (Units 23A, E, 27A, B, DE, F and 28A)
 - b. Unstable and potentially unstable areas (Units 23C, 27C and 27G)

4. Concerns Identified from Public Input
 - a. Effects of large private clearcut adjoining proposed project
 - b. Infestation of Scotch Broom

"Critical Elements of the Human Environment" is a list of elements specified in BLM Handbook H-1790-1 that must be considered in all EA's. These are elements of the human environment subject to requirements specified in statute, regulation, or Executive Order. These elements are as follows:

1. Air Quality
2. Areas of Critical Environmental Concern (ACEC)
3. Cultural Resources
4. Environmental Justice
5. Farm Lands (prime or unique)
6. Floodplains
7. Native American Religious Concerns
8. Threatened or Endangered Species
9. Wastes, Hazardous or Solid
10. Water Quality, Drinking / Ground
11. Wetlands / Riparian Zones
12. Wild and Scenic Rivers
13. Wilderness

These resources or values (except item #8) were not identified as issues to be analyzed because: (1) the resource or value does not exist in the analysis area, (2) no site specific impacts were identified, or (3) the impacts were considered sufficiently mitigated through adherence to the S&G's therefore eliminating the element as an issue of concern. These issues are also briefly discussed in Appendix E ("Critical Elements of the Human Environment"). Item #8 is addressed in the Specialist's Reports (Appendix F) and through formal Endangered Species Act consultation with applicable Agencies.

G. Issues to be Analyzed

The IDT reviewed the concerns identified during issue identification and felt that the design features would provide additional protection beyond the S&G's to sufficiently mitigate the concerns identified and therefore would not necessitate the identifying of a key issue. Public input suggested the additional cumulative hydrologic impacts from the adjacent private clearcut be included in the analysis therefore this concern was selected by the team as a key issue to be analyzed.

Key Issue: Cumulative Hydrologic Impacts

II. ALTERNATIVES INCLUDING THE PREFERRED ALTERNATIVE

This section describes the No Action and Proposed Action alternatives, and any alternatives considered but eliminated from analysis. These alternatives represent a range of reasonable potential actions. This section also discusses specific design features that would be implemented under the action alternatives. All action alternatives were designed to be in conformance with the RMP.

A. The No Action Alternative

The No Action Alternative is required by NEPA to provide a baseline for the comparison of the alternatives. This alternative represents the existing condition. If this alternative were selected there would be no harvesting of timber within the bounds of the project area. Harvest would, however, occur at another location within Matrix lands in order to meet harvest commitments. Selection of this alternative would not constitute a decision to reallocate lands to non-commodity uses. Future harvesting in this area would not be precluded and could be analyzed under another EA. There would be no entry for the purpose of applying silvicultural practices to meet ACS objectives at this time.

B. The Proposed Action Alternative

Implementation of the Proposed Action Alternative would result in the harvest of approximately 3.6 MMBF (million board feet) or 5375 CCF (hundred cubic feet) of the Swiftwater Resource Area's harvest commitment of 23.0 MMBF. A small amount of additional timber could potentially be included as a modification to this project. These additions would be limited to removal of individual trees or small groups of trees that are blown down, injured from logging, are a safety hazard, or are trees needed to facilitate the Proposed Action (ex. removal of guyline and tailhold trees or trees within the road construction prism). Generally these trees would be left on site as CWD and snags. Harvest activities would occur on five units for 54 acres of regeneration harvest (26%), four units for 155 acres of commercial thinning (73%) and two acres of temporary road right-of-way clearcut (1%). Other activities would include: temporary road construction, road renovation and improvement, subsoiling of previously compacted skid trails, site preparation with fire (slash burning) and replanting with young seedlings.

Approximately 0.6 miles of temporary **road construction** would occur on of government land. Approximately 1.7 miles of government and private road would have **road renovation** (restoring the road back to its original design); and 5.1 miles of government and private road would have **road improvement** (improving the road beyond its original design). This would consist of installing or maintaining drainage structures (culverts and ditches), reshaping the road surface and surfacing with crushed rock. **Road decommissioning** - "... road segment ... closed to vehicles on a long-term basis, but may be used again in the future. " (Transportation Management Plan [TMO], pg. 15) would be pursued on 0.3 miles of Government road (see pg. 6).

Timber harvest would consist of a combination of regeneration harvest, commercial thinning and density management. **Regeneration harvest** is designed to open the forest canopy to allow the re-establishment of a new forest stand with early seral stage vegetation (even-aged).

Commercial thinning is designed to reduce the density of the forest stand to maintain stand vigor and increase wood quality, promote increased growth on the remaining trees and recover wood fiber that would ordinarily be lost through natural mortality. **Density Management harvest** (in the Riparian Reserves) is designed to reduce the stocking of the forest stand in order that the growth of the remaining trees would be accelerated. This would accelerate the attainment of old growth forest characteristics by encouraging the development of larger trees more quickly.

The technique of modified even aged management and reserve seed tree harvest (RMP, pg. 150) would be used in the regeneration harvest areas. The traditional silvicultural system is modified to include biological legacies. This legacy consists of retaining a remnant of older aged, large (>20") green trees and snags (reserve trees), and coarse woody debris. CWD are trees, or portions of trees, that have fallen or have been cut and left in the unit for present and future wildlife habitat components (RMP, pg. 146) and to maintain site productivity.

The proposed action would require a mix of skyline cable logging (approximately 121 acres or 58%), helicopter logging (approximately 14 acres or 6%) and ground based (tractor) logging (approximately 75 acres or 36%). Helicopter landing locations are expected to be a minimum of one-half acre in size and no larger than one acre. **Firewood cutting and salvaging** of logging debris (slash) could occur in landing cull decks. The firewood permit would address specific stipulations.

Subsoiling would occur on previously compacted skid trails used under this action as well as any new trails created.

The **prescribed burning of slash** (burning under the direction of a written site specific prescription or "Burn Plan") would occur in the proposed units 23A, 27B, 27DE, 27F and 28A to prepare the site for tree planting by providing plantable spots for seedlings (i.e. clearing away the slash) as well as removing or temporarily retarding competing vegetation (see Appendix C). Approximately 58 acres would be burned. Burning would be by a combination of broadcast burning (maximum of 31 ac.), machine and/or hand pile and burn (maximum of 54 ac.) and hazard reduction (maximum of four acres of landing piles). **Fire trails** would be constructed by hand around the perimeters of the units to be broadcast burned prior to ignition.

C. Project Design Features as part of the Proposed Action

This section describes the project design features (PDF's) which would be incorporated in the implementation of the action alternatives. PDF's are site specific measures, restrictions, requirements or structures included in the design of a project to reduce adverse environmental impacts. These are listed in the RMP (Appendix D, pg. 129) as "Best Management Practices" (BMP's) and in the ROD as "Standards and Guidelines" (S&G's). BMP's are measures designed to protect water quality and soil productivity. S&G's are "... the rules and limits governing actions, and the principles specifying the environmental conditions or levels to be achieved and maintained." (S&G, pg. A-6). The proposed action includes the following PDF's :

1. **To meet the components of the "Aquatic Conservation Strategy (ACS)" (S&G's, pg. B-12):**
 - a. **Riparian Reserves** (Component #1) would be established. Riparian Reserves consist of permanently flowing (perennial) and seasonally flowing (intermittent) streams, the extent of unstable and potentially unstable areas and wetlands . The ROD (C-30) and RMP (pg. 24) specify Riparian Reserve widths equal to the height of two site potential trees on each side of fish bearing streams and one site potential tree on each side of perennial or

intermittent nonfish bearing streams. Data has been analyzed from District inventory plots and the height of a site potential tree for the Elk Creek Analytical Watershed has been determined to be the equivalent of 200 ft. slope distance. Therefore, Riparian Reserve boundaries would be approximately 200 ft. slope distance from the edge of nonfish bearing streams and 400 ft. from fish bearing streams in the project area. A fish-bearing stream is adjacent to unit 27B.

- 1) Silvicultural practices (density management) would be applied within the Riparian Reserves of Units 14A, 23E, 27A and 27H "to control stocking . . . and acquire vegetation characteristics needed to attain Aquatic Conservation Strategy objectives" (RMP pg. 25). The objective is to accelerate tree growth to promote larger trees and canopies, and provide a future source of large woody debris for stream structure. Approximately 20 ac. would be thinned for this purpose. Streambank stability and water temperature would be protected by maintaining a 20 - 100 ft. no cut buffer along all streams. The Riparian Reserves would have a heavier retention than the uplands in order to provide a source of interim CWD. The Riparian Reserves would be evaluated in two to four years and if additional CWD is needed, trees would be felled at that time.
 - 2) Riparian habitat would be protected from logging damage by directionally felling trees within 100' of streams and yarding logs away from or parallel to the streams (i.e. logs would not be yarded across streams). No road building would take place within the Riparian Reserves.
 - 3) All wetlands less than one acre would receive protection to the edge of the riparian vegetation. No logging would be allowed through the wetland. Trees designated for harvest, within 100' of the wetland, would be felled and yarded away from the wetland to protect this habitat. Two such wet areas were found within the project area (Units 23E). Another wetland less than one acre was found in Unit 27 DE and was excluded from the unit.
- b. This project is not in a **Key (Tier 1) Watershed** (ACS Component #2).
- c. **Watershed Analysis** (ACS Component #3) as been completed for this watershed (see pg. 2).
- d. **Watershed Restoration** (ACS Component #4). Decommissioning (i.e. repair drainage problems, seed and mulch and block to prevent access) would be pursued for Road # 22-2-27.2 segment A (0.3 mi.). Decommissioning is subject to the approval of Robert Whipple. NOTE: Roads under private control or government roads covered under a reciprocal right of way agreement cannot be unilaterally decommissioned. Any private party with existing rights must also agree to the proposed decommissioning. If approval is not granted for decommissioning, this natural surfaced road would be rocked to prevent erosion (RMP, BMP #G11, pg.137).

2. **To minimize the loss of soil productivity (i.e. limiting erosion, reducing soil compaction, protecting slope stability and protecting the duff layer):**
- a. **Measures to limit soil erosion and sedimentation from roads** would consist of fixing drainage and erosion problems by maintaining existing culverts, installing additional culverts and surfacing the road with crushed rock on permanent roads (Road No. 22-7-20.0, segment A and B; 22.0A and B; 22.2A; 22.4A; 23.0A and B; 23.2A; 23.4A; 23.6A; 23.8A and 27.2A). Temporary roads would be built, used and decommissioned the same operating season (i.e. no over-wintering of bare subgrade that would contribute sediment). Decommissioning (S&G, pg. B-31) would consist of subsoiling the roadbed with a self drafting winged subsoiler, water barring, blocking and seeding with native or sterile hybrid seed mix (if available) to reduce road densities. Road renovation and log hauling on unsurfaced roads would be limited to the dry season (normally May 15 to Oct. 15), however, operations would be suspended during periods of heavy precipitation. This season could be adjusted if conditions are such that no environmental damage would occur (ex. the dry season extending beyond Oct. 15). These are the BMP's (RMP, pg. 136-7) designed to minimize sedimentation and protect water quality.
 - b. **Measures to limit soil erosion and sedimentation from logging** would consist of requiring skyline yarding where cable logging is specified. This method limits ground disturbance by requiring partial suspension during yarding (i.e., the use of a logging system that "suspends" the front end of the log during in-haul to the landing, thereby lessening the "plowing" action that disturbs the soil). In some limited, isolated areas partial suspension may not be physically possible due to terrain or lateral yarding. Excessive soil furrowing would be hand waterbarred. Dry season logging would be required in Units 14A, 23E (part), 27A (part), and 27H (part). Helicopter yarding (Units 27F and 28A) would be done in areas where road access is inadequate for cable yarding. Logs would be lifted vertically off the ground and flown to landing areas on existing roads. Ground based logging, including road right-of-way clearing, would be limited to the dry season (May 15 to Oct. 15), however, operations would be suspended during periods of heavy precipitation if resource damage would occur. This season could be adjusted if conditions are such that no resource damage would occur (i.e., the dry season extending beyond Oct. 15). All fire trails that might route or channel water would be water barred to limit erosion.
 - c. **Measures to limit soil compaction** would consist of confining ground based activities to designated skid trails as identified in the logging plan. New trails would be limited to slopes less than 35% and with skidtrail spacings averaging at least 150 feet apart. Machines would be limited in size and track width to reduce compaction and trail width. Existing skid trails would be used wherever possible. All skid trails that are used and left in a compacted state after harvesting would be tilled with a self drafting winged subsoiler. Subsoiling is a practice that ameliorates soil compaction and improves water infiltration by pulling a device known as a "winged subsoiler" with a crawler tractor. Existing skidtrails, from previous entries, would also be tilled where practical (i.e., tilling saturated or very

rocky soils or skid trails with advanced reproduction would not benefit soil productivity and therefore would not be practical). The Authorized Officer (Contract Administrator) may decide that additional isolated minor ground based logging would be necessary. Such proposals may be subject to Interdisciplinary review. Machine piling would require the use of low pressure tracked type excavators and would be limited to slopes less than 35 percent under dry soil conditions and use existing trails as much as possible. The equipment would be required to only make a single pass across a traveled path for most of the area involved and travel over slash to the maximum extent possible. Subsoiling would need be done where determined as necessary by the Soil Scientist.

- d. **Measures to protect slope stability** would consist of grouping retention trees in areas identified by the soil scientist in Units 23A, E, 27A, B, DE, F and 28A. These areas have some stability concerns but not enough to warrant Riparian Reserve status. The added root strength of the extra trees would help maintain stability. Areas that could potentially impact the meeting of ACS objectives were dropped from the project (see Appendix D).
- e. **Measures to protect the duff layer** would consist of burning of slash during the late fall to mid-spring season when the soil and duff layer (soil surface layer of fine organic material) moisture levels are high and the large CWD has not dried. This practice would protect the soil duff layer and the CWD from being totally consumed by fire. The CWD reserved according to ROD guidelines would also be a source of organic material that can become incorporated into the soil structure (See para. 3b, below).

3. **To protect wildlife and wildlife habitat:**

- a. Future nesting and roosting **habitat for cavity dwellers** would be provided by reserving most existing hard or soft snags (at least 20" in diameter and 20 ft. in height) sufficient to meet the population needs of 40% of potential population (RMP pg. 64). This has been determined to be 1.2 snags per acre. Where this quantity is lacking in the regeneration units, additional green trees would be reserved for future snag recruitment. Note: Any snag deemed as hazardous to worker safety could be felled at the discretion of the operator and the Sales Administrator. Such trees would be reserved and left in place as CWD.
- b. **Wildlife habitat values** would be maintained in the regeneration units through the retention of six to eight large (greater than 20") green conifer trees per acre and occasional hardwoods as a biological legacy (RMP Appendix E, pg. 150). Twelve to eighteen trees per acre would be retained in the Connectivity portion (Units 27B, 27DE, 27F and 28A). At least 120 linear feet of CWD per acre (at least 16" in diameter and 16 ft. in length) would be preserved for the habitat of organisms that require this ecological niche (S&G, C-40, para. B). Where CWD is lacking in the above quantities, extra green trees would be reserved for future CWD recruitment (RMP pg. 65).

- c. Seasonal restrictions to prohibit logging during the nesting season (March 1 to September 30) would be applied to Units 14A and 23A if surveys indicate that a northern spotted owl (NSO) is nesting in the adjacent NSO core area.

4. To protect air quality:

All slash burning would have an approved “Burn Plan” and be conducted under the requirements of the Oregon Smoke Management Plan and done in a manner consistent with the requirements of the Federal Clean Air Act. The Federal Clean Air Act is designed to reduce air pollution, protect human health and preserve the Nation's air resources. The Oregon Department of Environmental Quality is responsible for implementing the Federal Clean Air Act, and the resulting Oregon Smoke Management Plan that requires the Oregon State Department of Forestry to manage the amount of smoke released into the airshed as the result of slash and field burning.

5. To protect and enhance stand diversity:

- a. All Pacific yew trees would be reserved.
- b. All tree species currently represented in the stand would continue to be represented in the stand after the harvest. Large "wolf" trees (large, full crowned, limby trees) would be retained for non-vascular plant legacy attributes. Mature and old growth remnant trees would be retained to the greatest extent possible in the commercial thinning and density management areas as well as defective and deformed trees that could provide future snags and nesting habitat.
- c. Snags and CWD would be reserved as described in paragraph three above.

6. To prevent and report accidental spills of petroleum products or other hazardous materials:

Hazardous materials (particularly petroleum products) would be stored in durable containers and located so that any accidental spill would be contained and not drain into riparian areas. All landing trash and logging materials would be removed. Accidental spills or discovery of dumping of hazardous materials would be reported to the Sale Administrator and the procedures outlined in the “Roseburg District Hazardous Materials (HAZMAT) Emergency Response Contingency Plan” would be followed.

7. To prevent the spread of noxious weeds:

Stipulations would be incorporated into the logging contract to prevent and/or control the spread of noxious weeds by requiring the cleaning of all equipment prior to entry on BLM lands (BLM Manual 9015 - Integrated Weed Management).

8. To protect the residual stand and promote stand health (commercial thinning areas):

- a. As much as possible, trees that would most likely survive logging and overall improve the stand condition and health would be selected for retention.

- b. No falling and yarding in the commercial thinning areas would be permitted from April 15 through July 15 when the sap is up in the trees and damage due to bark slippage could occur. If the Sales Administrator determines that, based on local conditions, excessive damage would not occur this date could be adjusted.
- c. Yarder size would be limited to match the size of the yarder to the size of the timber in order to minimize damage from an overly large yarder.

9. To protect Special Status Plants (SSP):

One *Buxbaumia viridis* (protection buffer moss) site (Unit 27A) and one *Otidea onotica*, (protection buffer fungi) site (Unit 14A) would be protected with a 60 ft. radius no-cut buffer to maintain the site.

D. Alternatives Considered but Eliminated

There were no other alternatives considered by the ID Team during the formulation of this project. Four units (23C, 27C, 27D and 27G) and portions of two units (23E and 27DE) were dropped for soils concerns (30 acres of late-successional forest). Two units (23B and 23D) were dropped for inoperability (12 acres of regeneration and 36 acres of commercial thinning).

III. AFFECTED ENVIRONMENT

This section describes the existing environment and forms a baseline for comparison of the effects created by the alternatives under consideration. Appendix F (Analysis File) contains Specialist's Reports with supporting information for this analysis.

This project lies within the Oregon Coast Range Physiographic Province. The FSEIS describes the affected environment for this province on page 3&4-21.

A. Stand Description

Logging in this area began in the 1940's using tractors and downhill logging systems. Logging slash was occasionally burned prior to planting or seeding with Douglas-fir. These forest lands are highly productive, capable of producing valuable stands of timber. All previously clear cut areas have been successfully regenerated on lands managed by the BLM. Many of these managed stands have been precommercially thinned and fertilized. The age and condition of the remaining stands is highly variable. Some are less than 200 years old and still healthy. Others are rotten and have dead or missing tops. The oldest trees may exceed 400 years.

Hickman describes three broad vegetation zones as part of the Douglas Area Soil Survey; western hemlock, grand fir, and interior valley (Hickman 1994). Zones are used to describe such things as potential production capabilities, expected vegetative response following disturbance, and plant communities. This area is a transition between the western hemlock and the grand fir zone. The predominant conifer species is Douglas-fir, which acts as a pioneer after a significant disturbance event such as fire. Conifer species in association include incense-cedar,

western hemlock, western red cedar, grand fir, and Pacific yew. Hardwoods including red alder, madrone, chinkapin, and maple are common when there is sufficient light. Ocean spray and hazel are common shrubs, and salal, Oregon grape, and sword fern are common on the forest floor. Competing vegetation including hardwoods, shrubs and grass can negatively effect the establishment and growth of conifer seedlings.

B. General Site Description

The general **topography** consists of very steep-sloped, highly dissected terrain complexed with gentle to moderately sloping, less dissected terrain. Slopes typically are 20 to 90 percent. The proposed units are predominantly north to west facing. Elevation of the proposed units range from about 400 feet at the bottom of 28A to over 1200 feet at the top of 23E.

The **climate** is Mediterranean, characterized by cool and mild winters and relatively dry summers. The Elkton, Oregon NOAA weather station recorded 53 inches average annual precipitation; and approximately 85% occurs from October to April, with a summer precipitation average of about 6 inches. Precipitation occurs predominantly as rain. The mean summer temperature is about 66 degrees Fahrenheit, maximum temperatures are typically in the low 80's F, and winter minimum temperatures are in the mid 30's F.

Soils were developed from a sandstone, siltstone parent material of the Tyee formation. They are well drained and highly productive. The measured site index for Douglas-fir ranges from 120 to over 140 (Hann-Scrivani). The very steep, dissected terrain tends to have loamy, relatively shallow soils. The gentle to moderately sloping terrain tends to have deep and more clayey and silty soils (see Soil's Report, Appendix F).

C. Affected Resources

Botanical - A botanical inventory of all proposed harvest units is currently being conducted. There have been no Special Status Plants (SSP) observed in any of the proposed harvest units to date. There are some infestations of scotch broom, a noxious weed within the project area.

Cultural Resources - No known cultural resources exist in the project area.

Fisheries - This project could affect several small frontal watersheds that drain into Elk Creek. Although no data are available for the small tributaries in the project area, mainstem Elk Creek in the project area has documented water quality problems. Information in the SEIS for Milltown Hill dam indicate that water temperatures in Elk Creek are well above the preferred range for salmonids. Temperatures are commonly in the mid to upper 70's. There is one known man-made barrier to fish passage in the project area on the haul route. ODF&W habitat survey data are not available for any of the streams in the project area.

Hydrology - The average road density (private and BLM) for the Elkton subwatershed is 6.5 miles/ mi². Research suggests that roads greatly increase the drainage efficiency of basins and alter the timing and magnitude of peak flows following winter storms (Wemple 1994, Jones and Grant 1996). Elk Creek has been identified by the Oregon Department of Environmental Quality

(DEQ) as water quality limited for several parameters: temperature, dissolved oxygen, flow modification, and fecal coliform. The streams in the project area drain into Elk Creek (near the mouth), therefore, the water quality conditions of Elk Creek are primarily due to the large associated drainage area. The tributaries draining the project area have not been identified by DEQ as having water quality problems and no data exists for the area.

Wildlife - Surveys for the northern spotted owl were completed by the research staff working for Eric Forsman (USDA, Forest Service; Corvallis, OR). No owls were found in the immediate vicinity of the project. The closest owl sites are Bell Mountain site (MS #: 3263) and Hancock Creek (MS : 1816A), and both are between 0.3-0.6 miles from the project area.

Surveys for marbled murrelets occurred in 1996 and 1997. There were no detections in the proposed project area (see protocol and definitions developed by Ralph et al. 1993 and 1994).

The red-tree vole is a species identified in the ROD (Table C-3) as a Survey and Manage species that should be managed appropriately. The project meets the red-tree voles guidance set-forth in BLM-Instruction Memorandum No. OR-97-009. As the project area is in a watershed where BLM manages greater than 10% of the land base and over 60% of the forested land base is in a favorable disposition (i.e. canopy closure greater than 60%); no specific surveys are required.

IV. ENVIRONMENTAL CONSEQUENCES

This section forms the scientific and analytical basis for the comparisons of the alternatives. The probable consequences (impacts, effects) each alternative would have on selected resources are described. This section is organized by the alternatives and the effects on resources by the key issues identified in section I paragraph G as well as the direct (effects caused by the action and occur at the same place and time), indirect (effects caused by the action and occur later in time or farther removed in distance) and cumulative (impacts of the action when added to other past, present and reasonably foreseeable future actions) impacts on the other resource values. The environmental consequences for these resources are more fully analyzed in Appendix F (Analysis File). This Appendix contains Specialist's Reports and the supporting information for this analysis. The EIS and FSEIS analyzes the environmental consequences in a broader and more detailed context. This EA does not attempt to reanalyze all possible impacts that have already been analyzed in these umbrella documents but rather to identify the particular site specific impacts that could reasonably occur. NOTE: A detailed analysis "Compliance with Aquatic Conservation Strategy Objectives" is contained in the Analysis File (Appendix F).

Implementation of this project would result in the irreversible or irretrievable commitment of resources in the loss of old growth forest, if this area is managed on an 80 to 150 year rotation. An irretrievable commitment of the use of fossil fuels, would result in either of the action alternatives.

A. No Action Alternative:

This alternative would not meet the RMP (pg. 15) objective of producing forest commodities that would contribute to the local economy for this particular project. It would not realize opportunities for restoration of past disturbance. Road densities and conditions would remain unchanged. There would be no entry for the purpose of enhancing conditions of late-successional forest ecosystems and applying silvicultural practices to meet ACS objectives.

All of the old natural stands would continue to slowly develop towards the western hemlock climax until a natural disturbance event creates conditions favorable for Douglas-fir regeneration. If fire is excluded, Douglas-fir would probably become less predominant in these stands. The stands where commercial thinning is proposed would continue to grow and develop under continual competitive stress and differentiate in time through self thinning. The potential for stand damage from disease and insects may be increased. Insect problems are more serious in stands that are unhealthy. Diseases such as laminated root rot are more likely to kill trees that are in close proximity to one another because the disease is transmitted via root graphs. Fires may be more intense because fuel loads build up and crowns are touching. Dead limbs and fallen material create fuel ladders that allow flames to reach the crowns. This is a common situation in overly dense stands.

Botanical - Barring any catastrophic events, the older forest stands would continue to support a variety of vascular and non-vascular plant species associated with late-successional forest stands. The younger stands would slowly develop into late-successional forest and the associated vascular and non-vascular plants would likely colonize these stands over time.

Fisheries - No change from the existing condition would be anticipated. The existing shade would continued to be maintained, thereby maintaining stream temperatures. No new roads, temporary or permanent would be built, nor would there be any road renovation. There would be no indirect effects to the fisheries resources as a result of alterations to the hydrologic cycle.

Hydrology - No changes would occur to the area that could potentially degrade or improve existing watershed condition. However, the culverts on the 20.0 road and 23.0 road would not be replaced and remain barriers to fish passage. Old compacted skid trails in the project area would not be sub-soiled. Generally, skid trails reduce soil infiltration capacity and runoff to streams may increase due to compaction.

Soils -Soil productivity loss and short term erosion and sedimentation due to road construction and road use would not occur. The opportunity to correct the chronic erosion problems from unsurfaced portions of the 22-7-23.0 road and the 20-7-20.0 road, some of which may be reaching streams, as well as making improvements on over six miles of existing roads would not occur at this time. Soil productivity losses and gains and short-term erosion resulting from ground-based harvesting and subsoiling would not occur. Residual compaction of old skid trails which would have been utilized for the thinnings would be left to slowly heal naturally. Soil productivity gains of the proposed action over the no action in regards to skid trails would be

dependent on the effectiveness of subsoiling. The risk of landslides occurring would be somewhat less than the proposed action.

Wildlife - There would be no discernable impacts to the wildlife, except that the fifth factor in "ecosystem management" suggested by Grumbine (1994) is not being considered (i.e. accommodate human use and occupancy within these constraints).

B. Proposed Action Alternative:

The following paragraphs discuss the direct impacts (i.e. impacts caused by the action at the same time and place) and indirect impacts (i.e. impacts caused by the action but occur later in time and farther removed in distance) of the Proposed Action.

Botanical - There would likely be an increase in vascular plant biomass following logging operations because of the increase in sunlight reaching the forest floor. Road construction and ground-based logging would likely cause negative long and short term impacts to hypogeous and epigeous fungi. Non-vascular plant diversity would likely be greatly diminished in the regeneration harvest units, however, in the commercial thinning units conditions would be created to increase the diversity of non-vascular plants over time.

Fisheries - Direct and Indirect Impacts (negative) -- Increased levels of sedimentation can adversely effect fish habitat. The potential to increase the amount of sediment in the streams could occur in several ways; increased surface erosion, mass movements, road related increases, and increases related to culvert replacements. Full riparian buffers were deemed adequate by the FEMAT team to prevent harvest related sediment increases. Potentially unstable areas are included in the Riparian Reserves, which greatly reduces the potential for sediment increases from mass wasting. Road construction is limited to temporary road with no stream crossings during dry season. No winter (wet season) hauling would be allowed on unsurfaced roads to prevent sedimentation. The greatest risk for increased sediment due to this action would be from road renovation and winter hauling. There would be short term increases in the sediment and turbidity due to culvert replacements on fish bearing streams.

- Direct and Indirect Impacts (positive) -- There would be a certain amount of road improvement associated with the project. Road improvements involve improving the drainage to reduce the drainage density and rocking the road surface to reduce sedimentation, as well as replacing a barrier culvert on a fish bearing stream.

Hydrology - Direct and Indirect Impacts -- There should be no direct impacts to water resources with the proposed harvest of these units. Indirect impacts from sediment associated with road renovation and temporary road construction should be minimized since roads would be built, used, and decommissioned in the same dry season. The roads would be built primarily on ridges, which would also minimize potential water delivery to road ditchlines from road cuts and extension of the stream network by roads. The proposed temporary roads would be located outside Riparian Reserves and no stream crossings would be built. There would be no long term

increase in road densities since no permanent road construction is planned for the project. It is likely that short-term sedimentation would occur during the implementation of road improvement activities, but long-term benefits to the aquatic environment are expected. These activities should not affect the downstream beneficial uses of water.

A certain level of ground disturbance would occur in Riparian Reserves that could potentially make sediment available to stream channels due to surface erosion within the commercial thinning units. Because of the project design features and BMP's, the sedimentation would be noticeable during the activity, but wouldn't adversely affect the on-site or downstream beneficial uses.

Potential direct or indirect impacts to stream temperatures are expected to be negligible. The streams within or adjacent to commercial thinning units are intermittent, that is, they do not flow during the warm summer months when elevated stream temperatures are a significant concern. A minimum 20-foot no cut buffer will be established on all commercial thinning units to maintain stream morphology and stream temperatures. Thinning in Riparian Reserves would remove some possible future sources of CWD but those remaining trees would grow faster and eventually be recruited into stream channels. The increase in growth would likely recruit large wood into streams at an earlier time than unthinned stands. Other PDF's and BMP's such as harvesting methods, erosion control, seasonal restrictions, and road standards should minimize potential impacts to Riparian Reserves and meet ACS objectives.

Soils - Direct Impacts -- Temporary spurs would be built mostly on stable ridgetop locations. Slope stability is not a concern for any of the spurs. Erosion and sedimentation from these spurs should be small and temporary and should not reach any streams. Current erosion and sedimentation from the unsurfaced portions of the 22-7-23.0 and the 20-7-20.0 roads may be reaching streams. This would be corrected by rocking these segments and thereby meet the ACS objective of maintaining or restoring the sediment regime. Some level of sediment due to hauling on the permanent road system can be expected. Tractor harvesting, where designated, can occur in accordance with the BMP's (RMP, pg. 131).

Wildlife - Direct impacts involve the removal of suitable nesting, roosting, and foraging habitat for the northern spotted owl, and suitable nesting habitat for the marbled murrelet. Dispersal habitat for the owl would be lost, and the change in the habitat and landscape condition could also impact the murrelet's ability to successfully fledge offspring. No murrelets have been detected within the project area.

- **Indirect impacts** may involve disturbance impacts associated with the logging operations (e.g. affects of noise from felling, logging, and hauling of timber) to those birds nesting and foraging in the adjacent suitable habitat.

C. Cumulative Impacts Analysis

The following paragraph discusses the cumulative impacts (i.e. the incremental impacts of the action when added to other past, present and foreseeable future actions).

Botanical - Cumulative impacts to vascular and non-vascular plants cannot be assessed due to lack of inventory data, but would likely to be positive in the commercial thinning units by creating a more diverse habitat.

Fisheries - None identified.

Hydrology (Key Issue: Cumulative Hydrologic Impacts) - It is unlikely that cumulative impacts to peak flows due to warm rain-on-melting snow would occur since the units are at, or below 1000 feet elevation. Unit 14A is adjacent to an existing private clearcut and proposed to be commercially thinned. A stream that extends into the unit would be given a variable no-cut buffer up to 100 feet. The complex of leave trees following commercial thinning, deeper soils, and higher water storage capacities of Unit 14A should reduce the likelihood of significant increases in peak flows. Significant elevations in peak flows (above current levels) would not be anticipated to be an identifiable response, because the units are not concentrated in one drainage, are located below the transient snow zone, and no permanent road construction has been proposed that would extend the channel network. The streams within the project area were found to be stable and well vegetated, and thus able to transport any anticipated additional flow and sediment without altering channel morphology. The complex of Riparian Reserves were identified to maintain and protect the structure and function of intermittent streams, and benefit both aquatic and terrestrial species.

Soils - Cumulative soil productivity losses due to soil compaction and surface horizon displacement in the watershed likely is large due to existing roads and ground-based harvesting in the past. These impacts in general heal very slowly. Ground-based operations that adhere to the S&G's, should not add to the cumulative impacts and could even result in a small improvement. The temporary spur to Unit 14A would be a long-term net productivity loss especially where there are road cuts.

Landslide analysis (Elkton-Umpqua WA) indicates that the occurrence of harvest related landslides of 0.5 acres or larger to be one for every 1000 acres harvested and the frequency of harvest related landslides 2.0 acres or larger to be one in 10,000 acres. This project proposes to harvest 210 acres therefore, based on past history, the chance of a landslide of 0.5 acres or larger to occur would be about 20 percent and the chance of a landslide of 2.0 acres or larger to occur would be about 2 percent. These percentages are considered high since high risk sites were excluded from the project and only the low risk of direct impact to streams would remain and that 73% of the project consists of commercial thinning which would retain much of the cover. The cumulative impacts to water quality due to sedimentation or mass wasting are in conformance with the Aquatic Conservation Strategy.

Wildlife - Cumulative Impacts involve the overall change in the landscape and the removal of suitable nesting, roosting, and foraging habitat for the northern spotted owl, and suitable nesting habitat for the marbled murrelet. These aspects were addressed in the FSEIS (pg. 3&4-244, 249).

V. CONTACTS, CONSULTATIONS, AND PREPARERS

A. Agencies, Organizations, and Persons Consulted

The Agency is required by law to consult with the following federal and state agencies (40 CFR 1502.25):

1. **Threatened and Endangered Species Section 7 Consultation** - The Endangered Species Act of 1973 (ESA) requires consultation to ensure that any action that an Agency authorizes, funds or carries out is not likely to jeopardize the existence of any listed species or destroy or adversely modify critical habitat. The required ESA consultation was accomplished with the **US Fish and Wildlife Service** (USF&WS) and the Biological Opinion (BO) was received on February 13, 1998. The BO concluded the proposed action is " . . . not likely to jeopardize the continued existence of the bald eagle, white-tailed deer, spotted owl or murrelet or adversely modify designated critical habitat for spotted owl or murrelets" and an "Incidental Take Statement" was issued. "Incidental Take is any take of listed animal species that results from, but is not the purpose of, carrying out an otherwise lawful activity conducted by the Federal agency . . . " (BO, pg. 39). The USF&WS has stipulated terms and conditions for the Incidental Take having to do with seasonal restrictions for the Northern spotted owl and the Marbled murrelet. The Roseburg District's BA for Endangered Species consultation was submitted to the **National Marine Fisheries Service** (NMFS). The Biological Assessment was a "likely to adversely affect" (LAA) for Umpqua River (UR) cutthroat trout and Oregon Coast (OC) steelhead trout. A BO has not been received from the NMFS.
2. **Cultural Resources Section 106 Consultation** - Consultation as required under section 106 of the National Historic Preservation Act with the **State Historical Preservation Office** (SHPO) was completed on October 20, 1997 with a "No Effect" determination.

B. Public Notification

1. **Notification** was provided to affected **Tribal Governments** (Confederated Tribes of the Coos, Lower Umpqua and Siuslaw; Grande Ronde; Siletz; and the Cow Creek Band of Umpqua Indians). No comments were received. Four letters were sent to **adjacent landowners**. No comments were received.
2. This project was included in the Roseburg District Planning Update (Winter 1996-1997) going to approximately 150 addressees requesting **public scoping**. Comments were received from Francis Eatherington representing Umpqua Watersheds, Inc. (see Appendix D - Scoping Comments).

3. A 30-day **public comment period** will be established for review of this EA and the associated FONSI. A “Notice Of Availability” will be published in the Roseburg News Review. This EA and its associated documents will be sent to all parties who request them. If the decision is made to implement this project, a notice will be published in the Roseburg News Review. Notification will also be provided to certain State, County and local governments (See Appendix G - Public Contact).

C. List of Preparers

Lyle Andrews	Engineering Lead
Marlin Pose	Wildlife
Isaac Barner	Cultural Resources
Ed Rumbold	Hydrology
Kevin Cleary	Fuels Management
Elijah Waters	Fisheries
Dan Couch	Watershed Analysis
Steve Weber	Presale Forester
Dan Cressy	Soils
Dave Erickson	Recreation / VRM
Dick Greathouse	Layout Forester
Judy Hyde	Project Engineer
Al James	Silviculture
Fred Larew	Lands
Jim Luse	EA Coordinator / EA Preparer
Evan Olson	Botany

References Cited

Biological Opinion and Conference Opinion - Implementation of Land Management Plans (USFS) and Resource Management Plans (BLM) (NMFS, March 18, 1997)

Elkton-Umpqua Watershed Analysis, June 1998; Roseburg District Bureau of Land Management, USDI

ESA Section 7 Consultation on FY98 Timber Sales on the Roseburg BLM District, Umpqua River Basin (NMFS, September 26, 1997)

Final Supplemental Environmental Impact Statement on Management of Habitat for Late-Successional and Old Growth Forest Related Species Within the Range of the Northern Spotted Owl (FSEIS) (Feb. 1994)

Forest Ecosystem Management: An Ecological, Economic, and Social Assessment, Report of the Forest Ecosystem Management Assessment Team [FEMAT] (July 1993)

Integrated Weed Management, BLM Manual 9015 - Dec. 2, 1992

Interim Guidance for Survey and Manage Component 2 Species: Red Tree Vole, BLM - Instruction Memorandum No. OR-97-009, Nov. 4, 1996

Management of Wildlife and Fish Habitats in Forests of Western Oregon and Washington, USDA - Forest Service (June 1885)

National Environmental Policy Handbook (BLM Handbook H-1790-1)

1988 Oregon Statewide Assessment of Nonpoint Sources of Water Pollution, Oregon State Department of Environmental Quality, Portland, Oregon

Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents Within the Range of the Northern Spotted Owl (ROD) and Standards and Guidelines for Management of Habitat for Late-Successional and Old Growth Related Species Within the Range of the Northern Spotted Owl (S&G) (April 13, 1994)

Roseburg District Hazardous Materials (HAZMAT) Emergency Response Contingency Plan (FY 1998)

Roseburg District Record of Decision and Resources Management Plan (RMP) (June 2, 1995)

Western Oregon Transportation Management Plan, June 1996; BLM - Oregon State Office, USDI

Other references as cited in the individual Specialist's Reports (Appendix F - Analysis File)

CRITICAL ELEMENTS OF THE HUMAN ENVIRONMENT

The following elements of the human environment are subject to requirements specified in statute, regulation, or executive order. These resources or values are either not present or would not be affected by the proposed actions or alternatives, unless otherwise described in this EA. This negative declaration is documented below by individuals who assisted in the preparation of this analysis.

Element	Responsible Position	Initials	Date	Remarks
Air Quality	Fuels Management Specialist			
Areas of Critical Environmental Concern	Environmental Specialist			
Cultural Resources	Archeologist			
Environmental Justice	Environmental Specialist			
Farm Lands (prime or unique)	Soil Scientist			
Flood Plains	Hydrologist			
Native American Religious Concerns	Environmental Specialist			
Threatened or Endangered Species (wildlife)	Wildlife Biologist			
Threatened or Endangered Species (plants)	Botanist			
Threatened or Endangered Species (fish)	Fisheries Biologist			
Hazardous/Solid Wastes	District Hazardous Materials Coordinator			
Water Quality Drinking/Ground Water	Hydrologist			
Wetlands/Riparian Zones	Hydrologist			
Wild and Scenic Rivers	Recreation Planner			
Wilderness	Recreation Planner			